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| 10/598,963 | 09/15/2006 | Hans Adams | VKSWP0102US | 2661 |
| 23908 7590 10/05/2009 RENNER OTTO BOISSELLE & SKLAR, LLP 1621 EUCLID AVENUE NINETEENTH FLOOR CLEVELAND, OH 44115 | | | | |
| EXAMINER | | | | |
| MAL TIEN HUNG | | | | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/598,963

Applicant(s)

ADAMS ET AL.

Examiner

TIEN MAI

Art Unit

2836

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 July 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 5 and 6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 5 is/are rejected.
- 7) ☒ Claim(s) 6 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/CDC)
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date 07/01/2009

DETAILED ACTION

1. Applicant's response of 07/01/2009 has been entered and considered. Upon entering amendment, claims 1-3, 5 and 6 have been amended; claim 4 has been cancelled.

Response to Arguments

2. Applicant's arguments filed 07/01/2009 have been fully considered but they are not persuasive for the reasons discussed below.

3. In response to applicant's argument that Wolgast's reference is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, Wolgast in view of Erickson discloses the claimed invention. Additionally, a preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

4. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies

(i.e., electronic switches are driven simultaneously into the closing state) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

5. Applicant further argues Q1 and Q2 of Arai as being electronic switches connected in series in the form of a cascade. It was never the Examiner's position that Arai discloses such limitations. However, as discussed in rejection section, Erickson discloses a voltage-dependent resistor (fig. 4) includes a plurality of electronic switches (Q1 and Q2) connected in series in the form of a cascade, said electronic switches each bridging a series resistor (R1 and R2) when the plurality of electronic switches are in conducting state.

6. For the reasons discussed above, the rejections are maintained.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wolgast (US 3,397,322, "Wolgast") in view of Erickson et al. (US 6,687,553, "Erickson").

9. **Regarding claim 1**, Wolgast discloses portable resistance spot welder, the apparatus (fig. 4) comprising:

a coil (107) supplied by a voltage source (voltage supplies by secondary winding 73);

a voltage-dependent resistor (97 and 103) provided between the voltage source and the coil; and

an auxiliary voltage source (119) is connected in parallel to the coil, the voltage of said auxiliary voltage source being opposite to that of said voltage source in reversal voltage event (col. 6, lines 10-12),

wherein the voltage-dependent resistor includes an electronic switch (97), and the electronic switch bridging a resistor (103), wherein the electronic switch being driven into a closing state, i.e., non-conducting state, when a voltage supplied by said voltage source falls below a given switching voltage (set by zener diode 91) (col. 5, lines 50-63). Wolgast does not explicitly disclose the voltage-dependent resistor include a plurality of electronic switches connected in series in the form of a cascade, said electronic switches each bridging a series resistor. Erickson discloses a voltage-dependent resistor (fig. 4) includes a plurality of electronic switches (Q1 and Q2) connected in series in the form of a cascade, said electronic switches each bridging a series resistor (R1 and R2) when the plurality of electronic switches are in conducting state. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the circuit of Wolgast and using a group of series-connected transistors, as taught by Erickson, because such arrangement caused substantially reduction in voltage drop across each individual transistor; thus, preventing their breakdown in the case of over-voltage. Alternately, it would have been obvious to one of ordinary skill in

the art at the time of the invention was made to modify the circuit of Wolgast and bypassing each of additional transistors by resistor, thus forming a voltage divider (R1 and R2) according to Erickson, because such arrangement guarantees substantially equal voltage drop across each transistor when they are in non-conducting state, thus preventing their breakdown in the case of over-voltage.

10. **Regarding claim 5**, Wolgast discloses that the switching voltage is determined by a reference voltage path (92).

11. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wolgast in view of Erickson, and further in view of Yiannoulos (US 4,705,322, "Yiannoulos").

12. **Regarding claims 2 and 3**, Wolgast and Erickson disclose the limitations as discussed above. Neither Wolgast nor Erickson explicitly discloses the auxiliary voltage source comprising a zener diode, and the zener diode connected in series with a rectifier diode. Rather, Wolgast discloses that the auxiliary voltage source is a rectifier diode (119). Yiannoulos discloses in fig. 2 that adding a zener diode (20) to an existing rectifier diode (14) (as shown in fig. 1) to improve the speed of the switching action of the circuit (col. 3, lines 48-62). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the circuit of Wolgast and add a zener diode, as taught by Yiannoulos, in order to improve the speed of the switching action of the circuit (col. 3, lines 48-62).

13. Claims 1-3 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arai et al. (US 4,649,458, "Arai") in view of Erickson.

14. **Regarding claim 1**, Arai discloses control circuits for electromagnetic coupling apparatus, the apparatus (fig. 5) comprising:

a coil (L) supplied by a voltage source (B);

a power switch (Q2) connected between the voltage source and the coil; and

an auxiliary voltage source (ZD) connected in parallel to the coil, the voltage of said auxiliary voltage source being opposite to that of said voltage source in reversal voltage event of the coil.

wherein the power switch is driven into the closing state, i.e., non-conducting state, when a voltage supplied by the voltage source falls below a given switching voltage (setting by at the nodes b1 and b2) (col. 5, lines 61-64).

Arai does not explicitly disclose the power switch is a voltage-dependent resistor. Erickson discloses a voltage-dependent resistor (fig. 4) includes a plurality of electronic switches (Q1 and Q2) connected in series in the form of a cascade, said electronic switches each bridging a series resistor (R1 and R2) when the plurality of electronic switches are in conducting state. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the circuit of Wolgast and using a group of series-connected transistors, as taught by Erickson, because such arrangement caused substantially reduction in voltage drop across each individual transistor; thus, preventing their breakdown in the case of over-voltage. Alternately, it would have been obvious to one of ordinary skill in the art at the time of the invention

was made to modify the circuit of Wolgast and bypassing each of additional transistors by resistor, thus forming a voltage divider (R1 and R2) according to Erickson, because such arrangement guarantees substantially equal voltage drop across each transistor when they are in non-conducting state, thus preventing their breakdown in the case of over-voltage.

15. **Regarding claim 2**, Arai discloses that the auxiliary voltage source comprises at least one zener diode (ZD).

16. **Regarding claim 3**, Arai discloses that the auxiliary voltage source connecting in series with a rectifier diode and in parallel to the coil (see fig. 5).

17. **Regarding claim 5**, Arai discloses that the switching voltage (at the node b1 and b2) is determined by a reference voltage path (C11, C12, R11 and R12).

Allowable Subject Matter

18. Claim 6 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

19. The art of record does not disclose each of electronic switches is switched by an auxiliary transistor, nor would it be obvious to modify the art of record so as to include the limitation.

Conclusion

20. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TIEN MAI whose telephone number is 571-270-1277. The examiner can normally be reached on M-Th: 8:00-7:00. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jared Fureman can be reached on 571-272-2391. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

/Tien Mai/
Examiner, Art Unit 2836

10-1-09

/Stephen W Jackson/
Primary Examiner, Art Unit 2836